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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,560	12/28/2004	Shuji Goma	914-200	2811
23117	7590	05/10/2006	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			LE, THAO P	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

5/

Office Action Summary	Application No. 10/519,560	Applicant(s) GOMA ET AL.	
	Examiner Thao P. Le	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 46-90 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 46-77 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/28/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2 pages</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Preliminary Amendment

Preliminary Amendment filed on 12/28/04 has been entered.

In Preliminary Amendment, applicant cancels claims 1-45 and adds claims 46-90.

Priority

Acknowledge is made of applicants' claim for foreign priority base on an application 2002-191191 filed in Japan on 06/28/2002.

It is noted that Applicants have filled a certified copy of said application as required by U.S.C 119, which papers have been placed of record in the file.

Election/Restriction

Examiner confirms that Applicants elected to prosecute Claims 46-77 without prejudice.

Information Disclosure Statement

This office acknowledges of the following items from the Applicant:

Information Disclosure Statement (IDS) filed on 08/18/05, 03/14/06 and made of record. The references cited on the PTOL 1449 forms have been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 46-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1 113 096 A1 (submitted by applicant and listed in IDS), in view of Iwane et al., U.S. Patent No. 6,682,990, hereinafter Iwane.

Regarding claims 46, 65, EP 1 113 096 A1 discloses a thin plate manufacturing method of forming a thin plate with a dipping mechanism dipping a surface layer part of a substrate 3 into a melt 8 of a substance (silicon) to form silicon material on the substrate including semiconductor material (silicon) in a crucible 9 arranged in a main chamber and unloading the substrate by solidifying the melt on the surface of the substrate. EP 1 113 096 A1 also discloses the substrate is being rotated through 360 degrees and dipping the surface layer into the melt involves controlling operations of the first and second substrate transport means and substrate rotation means. EP 1 113 096 A1 doesn't disclose loading the substrate into the main chamber involving loading the substrate into an adjacent loading sub chamber and unloading the substrate from the main chamber through an adjacent unloading sub chamber. Iwane discloses the method of forming a silicon layer on the substrate by anodization (also a dipping

process) including the transfer of the substrate from a loading sub chamber 301 into the main chamber 305, and transfer the substrate from the main chamber into an unloading sub chamber 306. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify EP 1 113 096 A1's method in view of Iwane's method because when using more than one chamber, loading sub chamber and unloading sub chamber, the productivity is increase and without interrupted; while one substrate is in unload sub chamber, another substrate can be loaded into loading sub chamber.

Regarding claims 47-48, 50, Iwane discloses switching means is arranged between the main chamber and the sub chambers and the sub chambers are constituted of a loading and unloading sub chambers.

Regarding claim 49, it is inherent that the inert gas would have been introduced into the chamber while setting the pressure of the atmosphere of the main chamber to not more than the atmospheric pressure to transfer the substrate from the loading sub chamber to main chamber and then from main chamber to the unloading sub chamber.

Regarding claims 51-56, 58, 62, 70-77, EP 1 113 096 A1 discloses mounting the substrate on dipping mechanism, bonding the thin plate by opposing a thin plate growth surface of the substrate to the melt and directing the plate growth surface to which the thin late is bonded upward on the position other than a position immediately above the crucible for demounting the substrate from the dipping mechanism along with the plate in the main chamber. It is inherent that a plurality of the substrates are introduced in the loading sub chamber from outside and then loading the substrates into the main

chamber and transfer the substrate one by one from a demounting position, and equalizing in a series of operations of the dipping mechanism moving the substrate from a mounting/demounting position for mounting or demounting the substrate to or from the melt substance.

Regarding claims 57, 59-61, it is inherent that detecting the position of the melt level involves controlling the operation of the dipping mechanism for dipping the substrate into the crucible, cooling the substrate, and stop dipping mechanism when the level of the melt is low and needs to refill the melt.

Regarding claims 63-64, Iwane discloses unloading the substrate from the main chamber to unloading sub chamber and check the temperature of the substrate before dipping the substrate into the melt.

Regarding claims 66-69, EP 1 113 096 A1 discloses wherein the substrate rotation means rotates the substrate by applying force with reference to a supporting point of its rotation center on a power point different from the supporting point and rotating the power point about the supporting point, mounting the substrate on a substrate mounting member mounted to be rotated, and arranging a plurality of the power points with respect to one of the supporting point (pages 3-4).

When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao P. Le whose telephone number is 571-272-1785. The examiner can normally be reached on M-T (7-6).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thao P. Le', with a stylized, cursive script.

Thao P. Le
Examiner
Art Unit 2818